

SECTION VII.—WEATHER AND DATA FOR THE MONTH.

THE WEATHER OF FEBRUARY, 1918.

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[Dated: Climatological Division, Weather Bureau, Apr. 1, 1918.]

PRESSURE AND WINDS.

The distribution of the mean atmospheric pressure over the United States and Canada, and the prevailing direction of the winds for February, 1918, are graphically shown on Chart VII, while the means at the several stations, with the departures from the normal, are shown in Tables I and III.

The month opened with pressure above the normal throughout all interior portions of the country, and for the greater part of the first decade the pressure continued high in the central districts west of the Rocky Mountains. During the second decade pressure was generally lower than normal in the above-mentioned district and as a rule moderately low in the interior and northern districts to the eastward. The third decade of the month was marked by a general decrease in pressure over most northern districts, in fact the barometer readings were moderately low over the entire country, but with the highest readings over the southern districts.

For the month as a whole the barometric pressure averaged above normal throughout the South generally from the Atlantic to the Pacific, extending in the east as far North as the Ohio River and the Middle Atlantic States, while it was below the seasonal average over nearly all other districts. The positive departures were generally not large, but in portions of the Lakes region, Canada, and the far Northwest the negative departures were considerable.

This distribution of the more permanent centers of high and low pressure favored warm southerly winds over the greater part of the country from the Plains region eastward, the northern limits of these winds extending to the Canadian boundary, from the Lakes region eastward. Southerly winds prevailed to a considerable extent also in the districts to westward of the Rocky Mountains.

TEMPERATURE.

February, unlike the two months that preceded it, was generally free from prolonged periods of cold, but there were frequent changes from one extreme to the other, particularly during the early part of the month. Low temperature prevailed at the beginning of the month in the upper Lakes Region, the upper Mississippi Valley, and from Nebraska to Texas, but with seasonal temperature near the east Gulf coast and in northern Montana. Higher temperatures rapidly overspread the Central Valleys, the Lake region, and to eastward and continued for a few days when a marked cold wave moved into the upper Mississippi Valley and thence eastward, giving decidedly low temperature in the northeastern States and part of the Lakes Region about the 5th, several stations recording the coldest February weather for more than a decade. Toward the end of the first week, moderate weather overspread most sections and continued until

about the middle of the second week when somewhat colder weather obtained generally for a few days; however the period as a whole averaged warmer than normal over practically the whole country with an excess of from 15 to 20 degrees daily in the middle Mississippi Valley and the middle and northern Plains States. Early in the third week a cold wave prevailed in most northern districts, and the temperature was decidedly low in the Great Plains and Plateau States, and after a few days of somewhat higher temperature cold weather again overspread the region from the Plains to the North Atlantic States. The third week averaged warmer than normal in the Gulf and South Atlantic States, about normal in the North Atlantic States and south of the Ohio River elsewhere it was below the seasonal average, the middle and northern Plains States averaging from 20 to nearly 30 degrees colder than normal. The temperature during the last week of the month was normal or slightly below in the middle and northern Plateau and North Pacific States, but elsewhere it was higher than normal, the warmth being most pronounced in the middle and northern Plains States, the Lakes Region, Central Valleys, and the Southwest.

For the month as a whole the temperature was above the normal in the Central Valleys and Southern States, slightly below in parts of the Plateau and Pacific Coast States, and considerably below in the upper Lakes region and extreme northeast. The lowest temperature reported at a regular Weather Bureau station during the month was 36 degrees below zero at Havre, Mont., and the temperature reached freezing or below in most districts during the early part of the month.

PRECIPITATION.

Frequent rains occurred in the North Pacific Coast States throughout the first week of the month and light precipitation fell in the eastern section of the country during the early part of this period, but elsewhere generally fair weather prevailed. During the first few days of the second week moderate precipitation occurred in the Ohio Valley, Lakes Region, and northern and middle Atlantic States, and about three days later rather heavy rain fell in portions of Missouri, Illinois, and the Lakes region, and again during the latter part of the week and for several succeeding days snows, often heavy, prevailed in most northern districts. Shortly after the middle of the month liberal rains set in over southern California, where they were sorely needed, and continued intermittently during the remainder of the month in much of California, Arizona, and the adjoining States. Toward the end of the third week precipitation prevailed over most of the eastern half of the country, with rather large falls in parts of Tennessee, the Ohio Valley, and the northeastern States. During the last week of the month rather heavy precipitation occurred in the Lakes region and northeastern States, and the month closed with some rain or snow over a considerable area from the lower Lakes to the Southern Rocky Mountain region.

The precipitation for the month as a whole was moderately large over nearly all parts of the Pacific coast, and

the amounts were near normal in the Lakes Region and to the southward also in portions of the west Gulf States and locally in Kansas, Colorado, and Arizona. In other districts as a rule the precipitation was light, particularly in eastern Virginia, the greater part of Florida, and generally in the States between the Mississippi River and the Rocky Mountains.

The snowfall for the month as a whole was generally not large, and there was a gradual decrease in the depth of the snow cover in most sections. However, from time to time there was considerable snow in some of the higher portions of the far western mountains, particularly in California, but the stored snow supply at the end of the month was almost everywhere less than the average at that date, and in the southern districts especially the prospects for late melting were unfavorable.

Except for the rather deep snow covering in some portions of the eastern coal-mining districts during the early part of the month which somewhat hampered operations, the weather conditions were generally not unfavorable for mining and transportation.

RELATIVE HUMIDITY.

The relative humidity for the month as a whole was below the normal in the central Plains States and in the Rocky Mountain region and to the westward. Elsewhere there was relatively more moisture in the atmosphere than usually prevails in February, due largely to the prevalence of moist winds blowing inland from the Gulf of Mexico and Atlantic Ocean.

GENERAL SUMMARY.

The moderate weather, especially during the latter part of the month, was favorable for farm work and the development of vegetation. Plowing for cotton and corn progressed satisfactorily and some planting was done in the extreme south. The weather of the month was favorable for winter grains, except that it was too dry over parts of the Great Plains and there was some freezing and thawing from Ohio eastward to the middle Atlantic coast. In Nebraska the condition of winter wheat improved during February, and in Kansas the drought was relieved in the north and east during the last few days of the month. There was little progress in the advancement of the crop in Oklahoma, and likewise it made slow growth and the stand was poor in Texas. In the central Mississippi and lower Ohio Valley States, the wheat plants were small, but they seemed to be well rooted and presented a satisfactory appearance. Winter wheat was in an unusually excellent condition in the north Pacific Coast States, and generally the mild weather was favorable to winter grains, except where there was a decided lack of moisture in the soil. There was considerable damage to oats during the winter in the Southeastern States.

The planting of crops progressed favorably in the extreme South and early truck made good growth in Florida. Ranges were in good condition in some southern portions of the Rocky Mountain system and over the Pacific States and the month was generally favorable for stock. Early fruits progressed favorably in the South, although some damage was done to citrus fruit in the lower Mississippi Valley by cold weather, and peach buds appeared to be badly winterkilled in the Central States, and more or less damaged in the Lakes Region.

Average accumulated departures for February, 1918.

| Districts. | Temperature. | | | Precipitation. | | | Cloudiness. | | Relative humidity. | |
|--------------------------------|-------------------------------------|----------------------------------|-------------------------------------|-------------------------------------|----------------------------------|-------------------------------------|-------------------------------------|----------------------------|-------------------------------------|----------------------------|
| | General mean for the current month. | Departure for the current month. | Accumulated departure since Jan. 1. | General mean for the current month. | Departure for the current month. | Accumulated departure since Jan. 1. | General mean for the current month. | Departure from the normal. | General mean for the current month. | Departure from the normal. |
| New England..... | 22.4 | -3.4 | -10.3 | 2.47 | -0.90 | -1.70 | 6.1 | +0.7 | 77 | +3 |
| Middle Atlantic..... | 33.3 | +0.5 | -8.4 | 1.32 | -2.00 | -1.30 | 5.5 | 0.0 | 71 | -3 |
| South Atlantic..... | 52.4 | +4.6 | -2.0 | 1.41 | -2.70 | -3.70 | 5.0 | -0.2 | 76 | +1 |
| Florida Peninsula..... | 70.6 | +3.8 | +1.1 | 0.90 | -1.60 | -2.70 | 4.0 | -0.2 | 81 | +1 |
| East Gulf..... | 56.3 | +5.4 | -0.7 | 2.15 | -3.60 | -1.30 | 6.0 | +0.5 | 76 | +1 |
| West Gulf..... | 52.6 | +3.0 | -4.4 | 0.98 | -1.30 | -3.00 | 5.8 | +0.9 | 74 | 0 |
| Ohio Valley and Tennessee..... | 38.0 | +2.4 | -9.7 | 2.25 | -1.30 | -0.60 | 6.1 | -0.1 | 75 | 0 |
| Lower Lakes..... | 24.5 | -0.2 | -10.6 | 2.25 | -0.20 | 0.00 | 6.6 | -0.2 | 80 | 0 |
| Upper Lakes..... | 17.0 | -2.2 | -12.0 | 2.06 | +0.30 | +0.90 | 6.1 | -0.2 | 83 | +2 |
| North Dakota..... | 11.5 | +4.6 | -0.6 | 0.20 | -0.30 | -0.30 | 4.9 | -0.1 | 83 | +2 |
| Upper Mississippi Valley..... | 26.7 | +2.2 | -8.6 | 1.19 | -0.60 | -0.90 | 5.2 | 0.0 | 78 | -1 |
| Missouri Valley..... | 28.2 | +3.8 | -4.7 | 0.94 | 0.00 | 0.00 | 4.4 | -0.8 | 75 | -1 |
| Northern slope..... | 22.1 | +1.6 | -1.3 | 0.73 | -0.10 | +0.20 | 5.4 | +0.2 | 70 | -3 |
| Middle slope..... | 37.2 | +5.0 | -2.8 | 0.79 | 0.00 | +0.10 | 3.7 | -0.3 | 57 | -10 |
| Southern slope..... | 49.5 | +5.0 | +0.2 | 0.11 | -0.80 | -1.90 | 3.6 | -0.9 | 45 | -17 |
| Southern Plateau..... | 45.8 | +1.0 | +0.3 | 0.50 | -0.20 | -0.10 | 3.1 | -0.5 | 45 | -3 |
| Middle Plateau..... | 32.4 | -0.6 | +1.0 | 0.94 | -0.20 | -0.20 | 5.1 | -0.1 | 61 | -6 |
| Northern Plateau..... | 33.6 | +1.5 | +5.8 | 0.92 | -0.50 | +0.10 | 6.9 | +0.5 | 69 | -6 |
| North Pacific..... | 41.4 | +0.1 | +4.8 | 6.88 | +1.60 | +0.80 | 7.2 | 0.0 | 78 | -4 |
| Middle Pacific..... | 48.3 | -0.7 | +1.2 | 4.39 | +0.10 | -3.50 | 5.1 | -0.5 | 74 | -3 |
| South Pacific..... | 53.6 | +1.0 | +2.7 | 5.47 | +3.00 | +1.00 | 5.0 | +0.6 | 69 | -2 |

WEATHER CONDITIONS OVER THE NORTH ATLANTIC OCEAN DURING FEBRUARY, 1917.

The data presented are for February, 1917, and comparison and study of same should be in connection with those appearing in the REVIEW for that month.

Chart IX (XLVI-18) shows for February, 1917, the principal storm track and averages of pressure, air temperature, water surface temperature, and prevailing direction of the wind at 7 a. m., 75th meridian time (Greenwich mean noon). Notes on the locations and courses of the more severe storms of the month are included in the following general summary.

PRESSURE.

The distribution of the mean atmospheric pressure for the month did not differ materially from the normal. The Azores, or North Atlantic HIGH, was nearly normal in position and extent, and slightly below in intensity. Separated by a shallow trough there was a second long and narrow area of high pressure that extended from the 48th parallel to eastern Texas. St. Johns, N. F., was near the southern limits of a well-developed low, with a minimum average pressure of 29.65 inches, where the normal is about 29.82 inches. The gradients over the western and middle divisions of the ocean were practically normal, while east of the 30th meridian they were comparatively weak. The pressure changes from day to day were not unusual for February when the fluctuations are often rapid, especially in northern waters.

The following table gives for a number of selected 5-degree squares the average pressure for each of the three decades, as well as the highest and lowest individual readings reported during the month within the respective squares.